

Reply to Final Office Action of January 11, 2006
Amendment Dated: February 10, 2006

Appl. No.: 10/608,467
Attorney Docket No.: H0003936

Listing of Claims

1 - 20 (Withdrawn)

21 (Currently Amended): A system for controlling one or more properties of a sheet of material to be manufactured on a sheet-making machine comprising:

a plurality of actuators distributed in the cross-machine direction over the sheet of material that are controllable to vary the properties of the sheet of material by varying both the magnitude of the actuator response and the cross-directional shape of the actuator response;

scanners distributed over the sheet of material to measure properties data about the properties of the sheet of material; and

a controller in communication with the scanners for calculating control actions for each of the plurality of actuators and implementing appropriate control actions at the actuators such that the actuators co-operate to adjust the properties of the sheet of material to desired targets.

22 (Original): The system of claim 21 in which each actuator comprises a steam actuator having an outlet chamber for releasing steam to the sheet of material with the cross-direction position and dimensions of each outlet chamber being manipulatable to control the cross-direction shape of the actuator response.

23 (Original): The system of claim 22 in which the outlet chamber of the steam actuator includes at least one movable baffle plate which is movable to control the cross-direction position and dimensions of the outlet chamber.

24 (Original): The system of claim 21 in which each actuator comprises a steam actuator having an outlet chamber for releasing steam to the sheet of material and including a screen plate with openings there through covering the outlet chamber and at least one movable plate, such that moving the at least one movable plate with respect to the screen plate acts to fully or partially obstruct openings in the screen plate.

Reply to Final Office Action of January 11, 2006
Amendment Dated: February 10, 2006

Appl. No.: 10/608,467
Attorney Docket No.: H0003936

25 (Original): The system of claim 21 in which each actuator comprises a steam actuator having an outlet chamber for releasing a flow of steam to the sheet of material including at least one air jet associated with the outlet chamber dischargable to control the shape of the steam flow.

26 (Original): The system of claim 21 in which each actuator comprises a nozzle for delivering a water spray atomized by air pressure to the sheet of material including means for adjusting the air pressure at the nozzle to control the shape of the water spray.

27 (Original): The system of claim 21 in which each actuator comprises a nozzle for delivering a water spray atomized by air pressure to the sheet of material including means for adjusting the air flow at the nozzle to control the shape of the water spray.

28 (Original): The system of claim 21 in which each actuator comprises a nozzle for delivering a water spray atomized by air pressure to the sheet of material, the nozzle having an water discharge opening and an air discharge opening that are adjustable by position with respect to each other to control the shape of the water spray.

29 (Original): The system of claim 21 in which each actuator comprises an induction heating coil for heating at least one of a pair of rolls to change the diameter of the at least one roll in order to vary the gap between the pair of rolls and thereby the thickness of a sheet of material passing between the rolls with each coil having multiple windings for generating magnetic fields whereby controlling the currents to each of the multiple windings controls the cross-direction shape of the actuator response.

30 (Original): The system of claim 21 in which each actuator comprises an induction heating coil for heating at least one of a pair of rolls to change the diameter of the at least one roll in order to vary the gap between the pair of rolls and thereby the

Reply to Final Office Action of January 11, 2006
Amendment Dated: February 10, 2006

Appl. No.: 10/608,467
Attorney Docket No.: H0003936

thickness of a sheet of material passing between the rolls, each heating coil being mounted for pivotable movement whereby adjusting the angle of the heating coil controls the cross-direction shape of the actuator response.

31 (Original): The system of claim 21 in which each actuator comprises an array of infrared heating lamps for heating the sheet of material whereby controlling the voltage of each heating lamp controls the cross-direction shape of the actuator response.

32 (Original): The system of claim 21 in which each actuator comprises a gas-fired infrared emitter matrix for generating infrared radiation to heat the sheet of material, the emitter matrix being heated by combusting gas and having screen plates with openings there through adjacent the emitter matrix, whereby moving the screen plates with respect to each other to fully or partially align or misalign openings in the screen plates acts to vary the gas supply to the emitter matrix to control the cross-direction shape of the actuator response.

33 (Withdrawn)